Referee Report on the manuscript entitled “Ratio-Product Type Exponential Estimator For Estimating Finite Population Mean Using Information On Auxiliary Attribute” :

The authors try to improve the estimators having auxiliary attribute, instead of variable, in the simple random sampling and the two phase sampling methods. However, the improvement tactics are the same as for the estimators having the auxiliary variable. It is well known that the addition of optimum weights to the estimators always make the estimators more efficient. Also, in this study, the authors propose estimators having optimum weights and compare the proposed estimator with sample mean and the estimators without optimum weight. The result is of course obvious: The proposed estimator having optimum weight is the most efficient estimator. However, this is an expected result. Perhaps, this study may be evaluated as a good mathematical exercise for the estimators using auxiliary attribute but it is not an interesting study. Moreover, it requires some modifications as follows:

1. On page 3, the authors mention the study Bahl and Tuteja (1991) but the estimator in Bahl and Tuteja (1991) is not given in the paper. Therefore, the reader cannot understand why the authors propose the estimators such as (1.5) and (1.6). The same problem also appears for the estimator in Singh and Espejo (2003). Again, the reader cannot understand why the authors propose the estimator such as (3.1).

2. Authors call the estimators in (1.5) and (1.6) as ratio and product estimators, respectively. However, in my opinion, the estimators in (1.1) and (1.2) are the ratio and product estimators, respectively.

3. For the proposed estimators in (1.5) and (1.6), what is the reason of summing up the terms of p and P? The difference of these terms, called difference estimator in literature, is logical as it gives the bias but I cannot give any meaning to the addition of these terms. Shortly, developing of the proposed estimators is not well presented.

4. What are f_1 in the last line of page 3 and f_3 in (6.5)?

5. In the applications, we see that the proposed estimators without optimum weights are quite less efficient than even sample mean in both the simple random sampling and the two phase sampling methods. This shows us that using the auxiliary attribute does not give more accurate estimates and, thus, using the auxiliary attribute is not necessary for the data used in the paper. Only using the optimum weight is enough to obtain efficient estimates and this is well known information. Therefore, these application data sets are not suitable for a paper presenting to use the auxiliary attribute in the estimators.

6. On page 9, the title of the sixth section should be “Two Phase Sampling”. Double Sampling is a different method. This correction should be made in the rest of the paper.